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ABSTRACT

The evaluation report details the structure and outcomes of a workplace education program for members of the Amalgamated Clothing and Textile Workers' Union from May 1993 through March 1995, and assesses the program's design as a model for similar programs elsewhere. The program was designed to enhance workers' skills and meet personal educational needs through adult basic education, English-as-a-Second-Language instruction, Spanish literacy instruction, high school equivalency, mathematics, and vocational courses. In addition, the program promoted adult educator training and workplace curriculum development. An introductory section gives an overview of the program. Two subsequent sections provide assessments of the efficacy of the program structures and of the program's process and outcome results. The next section examines five aspects of the program model: the comprehensiveness of its framework; collaborative planning mechanisms; its worker-centered curriculum and instructional techniques; formative program evaluation; and the extent to which it broadens the concept of workplace education. In all of these areas, the program was found to be effective and promising as a model for other, similar programs. (MSE) (Adjunct ERIC Clearinghouse on Literacy Education)

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ED 391 396

Worker Education Program 1993-95

Evaluation Report

by

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Submitted to
The Chicago Teachers' Center
Northeastern Illinois University
and
The Amalgamated Clothing and Textile Workers Union

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Table of Contents

Introduction..... 3
The Worker Education Program (WEP)

Efficacy of the Program Structures..... 5
WEP: Developing a Comprehensive Program

Process and Outcome Results.....13
WEP: Meeting the Education Needs of Workers

Potential for Dissemination.....40
WEP: A Model for Workplace Education Programs

1. Comprehensive Framework to Guide the Program
2. Collaborative Workplace Education Planning
3. Worker-Centered and Holistic Curriculum and Instructional Approaches
4. Formative Evaluation for Program Improvement
5. Broadening the Concept of Workplace Education

Summary and Conclusions.....44

WEP EVALUATION REPORT 1994-1995

Introduction

The purpose of this Evaluation Report is to examine the efficacy of the program structure, implementation and outcomes of the Worker Education Program (WEP) from May, 1993 to March, 1995. Furthermore, this report will assess the potential of the WEP as a model for instituting similar workplace education programs.

The primary project goals of the WEP, as stated in the Plan of Operations of the Project Proposal, continue to serve as the basis for the evaluation framework of this Report:

> The overall goal of this project... is to develop and implement a workplace literacy program that will provide workers with adult literacy skills in reading, writing, mathematics, problem-solving and English proficiency that will enhance workers' readiness for promotion and continuing employment. (p.15)

The WEP evaluation component provides formative and summative assessment activities which address the following program goals:

1. to enhance workers' skills in the workplace;
2. to respond to individual learning needs of ACTWU workers;
3. to focus instruction on workers' workplace and personal educational needs;
4. to build a network in which partners provide Adult Basic Education, English as a Second Language, Spanish Literacy, GED, Math, and Workplace courses to interested workers;
5. to assist workers to upgrade their skills for job stabilization and job promotion;
6. to assist and prepare workers to take an active role in their union;
7. to train adult educators to meet the diverse educational needs of program participants;
8. to create meaningful, relevant, and comprehensive curricula and materials for worker reflection and workplace advancement.

(Curriculum Guide, p. 2)

This Report seeks to answer this twofold evaluation question: to what extent were the program structures implemented and how are these structures related to measured outcomes? This Report focuses particularly on the impact of the program on the targeted worker participants by examining in detail the curriculum design and implementation, the training of the instructional staff, and the observed educational outcomes of the workers.

Efficacy of the Program Structures

WEP: Developing a Comprehensive Program

An important purpose of this Evaluation Report is to determine the extent to which program structures and administrative procedures have been put in place to result in the process and outcome goals of the program. The evaluation design utilizes two approaches: (1) an assessment of program structures and systems as described in project documents (project proposal, curriculum guides, staff development plans) and (2) a formative evaluation of program structures and administrative procedures as they are implemented (interviews, observations of classes, teacher training sessions and administrative meetings, analysis of program files).

Overall Finding

One of the greatest strengths of the WEP is the comprehensive design and structure of the program. This is exhibited in the excellent leadership and vision provided by the director and professional administrative staff, a clearly articulated plan of operation, a well-researched, relevant worker-centered curriculum, a diverse, dedicated and well-supported teaching staff, an effective ongoing teacher training program, and unique partnership between the University, the Union and the Businesses. The program conducts frequent evaluation of the structure, operation, curriculum, and training in order to ensure that program and worker participants needs are being met most effectively.

Administrative Structure

The WEP is ably led by a core staff consisting of the program director and two training coordinators. The working relationship among the administrative staff is harmonious and based on regular communication, feedback and a hands on knowledge of the program operation at each work site. The administration maintains close contact with the teaching staff, drawing on its professional expertise to provide both moral and technical support. Many administrative decisions that impact the teaching staff or worker participants are made with the input of teachers and workers, reflecting the program's

"participatory" approach. Attendance forms and student assessment instruments, for example, were modified as a result of input from teachers. Teachers were also instrumental in restructuring courses into 16-week modules, thus helping to systematize curriculum implementation and assessment periods. Worker participants voice issues that are incorporated into lessons plans and give feedback on courses through questionnaires and informal comments. Communication between staff and teachers is frequent and valued. Regularly updated computer-based records provide valuable data for administrative and assessment purposes.

The WEP administrative plan calls for two types of Advisory Boards: a program-wide Advisory Board with representatives of the educational provider, all business and union partners, and local Advisory Boards at each site made up of representatives from all partners that oversee the planning, implementation and assessment of the program. It has become evident through the program implementation process that the most successful local Advisory Board set up is one in which all partners meet regularly, where there is strong leadership from the Union, and active representation and participation by management. It has been a challenge for the WEP to organize Advisory Boards in which these critical elements coalesce. The Amalgamated Bank of Chicago (ABOC) is an example of a WEP partner that has an ideal Advisory Board set up, one which has greatly facilitated the effective implementation of the program.

The addition of a satellite factory site in Louisville, Kentucky this grant period created new administrative challenges for the Chicago-based program. The WEP conducted a careful search for a Louisville-based educational provider that would serve as a liaison and provide the actual class instruction in accordance with WEP guidelines. This partnership has provided the WEP with an opportunity to develop effective administrative strategies that maintain the personal, hands on quality of the program, customized curriculum and training workshops for the local Louisville staff, and it has expanded the predominantly Latino population base of the WEP to include worker participants from Asia, Africa, and Eastern Europe.

Workplace Education Curriculum

The Curriculum for each workplace is created based on a comprehensive assessment of skills in language and communication, math, problem-solving and other basic work tasks required in jobs at the sites. The Curriculum Guide incorporates current research in the fields of adult education, second language acquisition, and workplace literacy and reflects the participatory nature of the program, allowing for addition of relevant worker-generated topics and materials as the program progresses. This type of curriculum, whether for English as a Second Language, Math, or other basic skills, requires instructors to keep records of what is covered in class, inserting new lessons as requests are made, and adjusting the measured course objectives to reflect this evolving curriculum design.

This design, while being one of the most challenging, is particularly appropriate for a Union-based workplace program such as the WEP. This worker-centered strategy recognizes that "learning is a democratic, inclusive, and open process...Individual needs and differences are respected, and each learner takes responsibility for setting his or her own learning goals." (Worker-Centered Learning: A Union Guide to Workplace Literacy, AFL-CIO Human Resources Development Institute, 1990, p. 25)

The WEP successfully meets the challenge of using an evolving curriculum by engaging teachers in the development of site-specific and often worker-generated curriculum objectives, materials and assessment tools based on the core themes addressed in the Curriculum Guide. The Guide specifies learning objectives (e.g., "to be able to answer Quality Control questions from machine operator, supervisor"), language skills needed to accomplish the objectives (e.g., "structures and vocabulary related to weights, measurements, comparisons - It's too heavy"), lesson activities (e.g., "dialogues, role-play reporting a machine breakdown, grammar practice on comparisons in QC situations"), and materials such as specific textbook sections, company products and handouts, etc. (Curriculum Guide, 1993, "Quality Control" unit).

The Guide also provides specific goals for each workplace course and a site-specific vocabulary list. The Curriculum format challenges teachers to continually assess the needs of their students and translate their observations into concrete class lessons. The Curriculum component of the WEP is one of its greatest strengths, providing a pragmatic framework for course design.

Instruction and Teacher Training

The program's interest in securing quality instructors is apparent in the initial interview questions that applicants are asked. The interview asks teachers to reflect upon their teaching philosophy and experience, their pedagogical approach, their record-keeping skills, their knowledge of labor unions and ability to work in union-management settings, and the positive contributions they would make to a worker-centered educational program.

It is the conclusion of this Report that the teachers effectively meet the unique challenges of a worker-centered instructional program by developing lessons drawn from the workers' experience at the workplace and facilitating class activities that are worker-centered. The teachers are dedicated and sensitive to the needs of their students. They are able to speak in detail about individual students, and keep written accounts of students on monthly progress checklists.

The teacher training component of the WEP is outstanding. Mini lessons, modeling, development of hands on instructional materials, and moral and professional support are a consistent part of the training. Regular teachers' meetings give the staff an opportunity to expand their understanding and practice of an eclectic array of methodologies that compliment the participatory nature of the program. Teachers are encouraged to develop instructional approaches that benefit all types of learning styles including visual, aural, and kinesthetic. In order to assist teachers in understanding the operation of the work site and in designing relevant workplace-specific lessons, they are given guided tours of the work site, and whenever possible, are also a part of the initial task analysis. The training coordinators do an exemplary job of facilitating the professional growth of the teaching staff.

The WEP faces the challenge of implementing a worker-centered approach to instruction for adult learners who are frequently in a formal educational setting for the first time or the first time in a very long time. They are most often products of teacher-centered, rote-based educational systems. It is not uncommon for students from such backgrounds to expect a teacher-centered classroom in which students do not take initiative. The following classroom incidents reveal the success of the WEP learner-centered approach in terms of students taking responsibility and initiative in class.

In one multi-level ESL class, two small groups were given tasks to complete as the teacher circulated between groups. Even at the very beginning literacy level, students were actively helping each other, finding ways to conduct their language practice without waiting for the teacher to come to their group. It was impressive to observe the degree of confidence and self-directed learning taking place. The advanced group was also highly involved in the task at hand and asked if they could do one of their homework pages in advance. They wanted more challenge and requested the extra practice in class.

In another workshop course on quality control, the instructor brought in scrap pieces for students to examine and engaged them in discussion about preventing scrap. As a result of class, students made specific requests to regularly see the actual scrap pieces produced by the various departments in the factory rather than simply see reports about them. This, they felt, would enable them to have a better sense of what their role was in preventing such errors on the line. These scenes of self-directed activities and initiatives are positive reflections of the learner-centered instructional approach.

As a part of ongoing professional development, teachers attend regional conferences and workshops, both as participants and presenters. Teachers are encouraged to document successful lesson activities and materials which can be shared with other WEP teachers as well as with other professionals. Among the conference titles presented by WEP staff were *Customizing ESL Curriculum and Teaching Activities for the Workplace* (Illinois TESOL-BE State Convention, 1995), *Games for the Workplace, Workplace Instruction for Specific Purposes,* and *Successes and Challenges of a Workplace Partnership* (Illinois Partnerships for Work Force Education Conference, 1995).

Classroom observations are also an integral part of ongoing professional development. Teachers are observed regularly by training coordinators using an evaluation instrument rating five aspects of the class: 1) the classroom atmosphere, 2) the lesson itself, 3) variety in learning activities, 4) student participation, and 5) feedback and correction. The teacher answers pre and post questions about the lesson and rates his or her own instruction. It is a clear objective of this program component to promote a reflective attitude in teachers toward their work. Teachers have commented on the usefulness of observations and practical follow up support from the training staff.

Recruitment, Placement, and Monitoring Student Performance

Recruitment of students continues to be the greatest challenge for the WEP. A number of incentives are used to meet enrollment targets including work site open houses, frequent visits to the work sites, promotional rallies and special events, and printed announcements. Recruitment is enhanced when there is strong support of the union and management at the work site. Some workers who express interest in the program are unable to attend classes due to work shift conflicts, problems with car pools or child care arrangements. The WEP is committed to providing as many opportunities as possible for workers to participate. At Suncast, one of the larger participating sites, in fact, there is a waiting list of workers who want to attend class.

- Students are given a series of tests to determine appropriate program placement in ESL, Math, and other courses. These include the B.E.S.T., Holistic Writing Samples, the T.A.B.E., and a General Work-Based Assessment developed by the WEP. Student progress is monitored through Pre and Post Tests, Student Portfolios, Progress Checklists, Anecdotal Records, and Attendance Records. The program-specific Work-Based Assessment has made it possible to begin measuring language skills in a work related context for the first time. Both this tool and the revised Progress Checklist were developed as a result of the WEP's continuing search for the most effective ways to evaluate participants. It is evident that the WEP maintains thorough and effective methods to place and monitor the progress of students.

Collaboration between Partners and Participating Businesses

One of the most important goals of the WEP was to have workers, employers, university, union, and community participation in the program planning and implementation. Program administrators and staff continue to dedicate significant time and effort to working with the participating companies to ensure the successful implementation of the workplace education plans. These plans greatly facilitate the recruitment and retention of students and are linked to performance and reward policies of the work site. This is one of the great successes of the program for it links quality work and workplace education policy and strategic planning. Moreover, it is one of the best

indicators of the extent to which management is committed to the goals of the workplace education program.

The following excerpt from one of the participating business' education and training policy statement is reflective of the view of many companies involved in workforce education.

> ...the Education/Training Policy calls for the continued upgrading by employees...of their abilities and skills through participation in self-improvement schooling and job related education/training programs.... Increased customer demands, more technical equipment, more sophisticated procedures and upcoming ISO requirements for all employees necessitate the upgrading of abilities and skill requirements in every...job. English language reading ability and GED level math proficiency (are) essential job requirements. (Upgrading is necessary) to handle all the future changes a company like (this one) must complete to remain competitive. (Phoenix Closures Education/Training Policy Memorandum, 1995)

One of the most fruitful partnerships was implemented at the Amalgamated Bank of Chicago (ABOC), where an active Advisory Board composed of representatives from the Union, the Bank, and the WEP oversaw a series of mini-courses that improved skills of 52 participants. This participatory model of skills training involved development of customized curriculum and instructional approaches and evaluation strategies based on careful and detailed task analysis of the various banking department jobs, with contributions from all partners. In a unit on business writing, for example, actual bank memos and reports were analyzed and used as the basis for instruction. Participants responded very positively to this work-based training, as evidenced in course evaluations and comments of students. (See Outcomes and Results, p. 31)

Formative Evaluation

Information about program operations, student participation, curriculum and instruction, and training was an important part of policy making, administration, and program monitoring. Both internal and external formative evaluation activities provided timely and critical data for WEP needs. These activities included elicitation of feedback from advisory boards, work site personnel, teachers and other staff, classroom observations by WEP training coordinators, program director and external evaluator, interviews with students, teachers and program staff by the external evaluator, review of student portfolios and attendance records, and review of tests and curriculum implementation. Modifications and refinements of program strategies and structures were made on the basis of this formative evaluation data.

Process and Outcome Results

WEP: Meeting the Educational Needs of Workers

Several language, basic skills and worker performance indicators were examined to assess the effectiveness of the Worker Education Program. To determine student progress and to evaluate program outcomes, the following information was gathered on each worker participant:

Background Information: sex, age, country of birth

Employment: company, work position

Length of Employment in current workplace

Education: years of schooling

Class Attendance Hours

Pre and Post-test scores on BEST (oral and literacy subtests) and TABE (math subtest)

Pre and post-test Writing Samples in Spanish and English

Comments of progress by teachers

Examples of student work from portfolios

Additional process and outcome information was obtained from observation of classes, program staff meetings, interviews with work site managers and supervisors, and interviews of teachers and program staff. This data was used to determine the extent to which students improved their workplace language and basic skills and improved workplace performance.

Overall Findings

There was significant progress found in measures of language and math skills as a result of participation in WEP classes. Gains were measured on four tests: the BEST Oral Subtest, the BEST Literacy Subtest, a Holistic Writing Sample, and the TABE Math Subtest. The average gain on the BEST Oral Subtest was 5.6, on the BEST Literacy Subtest, 5.2, on the Holistic Writing Sample, 1.0, and on the TABE Math Subtest, 8.7 (See following Tables). These gains are meaningful, particularly in light of the educational and language backgrounds of the participants. The average years of schooling is seven and nearly all students were non-native speakers of English.

Student writings, anecdotal records by teachers, and interviews with work site supervisory personnel and WEP staff revealed important information about the impact of WEP classes on the participants' workplace performance and their personal lives. These case studies provide evidence that the WEP is effectively meeting its stated objectives (See Case Studies).

Profile of Worker Education Program Students

The WEP served a total of 694 students in classes, mini-courses and workshops during the evaluation period. Of these, 411 (59%) were women and 283 (41%) were men. The majority of participants again this year were Latino (62.8%), with Asians as the second largest group (12.6%), primarily due to addition of the Louisville plant. The worker participants were employees at 22 different businesses, all of which were light manufacturing plants, with the exception of The Amalgamated Bank of Chicago. Students ranged in age from 18 to 76 and represented 30 nationalities.

For the purposes of this evaluation, an analysis was made of the pre and post test outcomes of a representative sample of 87 of the 468 students that attended long-term classes. Table 1 and 2 provide background information for each student in the sample. The tables show that the majority of participants are female (62.5%), were born in Mexico, completed an average of 7 years of school, and were employed in their current work site for an average of 6.7 years. The average age of the participants was thirty eight. The students in the sample represent a cross section of all participating work

sites. Most are employed as machine operators, assembly workers, material handlers, and garment industry workers.

This sample is representative in that it draws from all participating work sites and reflects the average age, country of birth, years of schooling and length of employment of the program participants in long-term classes. The number of female participants in the sample (62.5%), however, is larger than the program percentage (56%).

Not included in the sample are students who attended mini-courses and workshops. The effectiveness of these training's was measured through student self-assessment and course evaluation forms, interviews and anecdotal information from participants, instructors, and work site personnel. (See Case Studies of Work Sites)

Table 1

Profile of a Representative Sample of Participants*
Worker Education Program 1993-95

Sex	Age	Birthplace	Years of Schooling	Company	Position	Years of Employment
F	43	China	10	Oxxford	trimmer	5
F	41	China	6	Hartmarx	sewer	18
F	49	China	10	Oxxford	sewer	5
F	56	Mexico	6	Juno	assembly	10
M	55	Mexico	2	Juno	laborer	15
F	37	Mexico	9	Juno	assembly	3
M	45	Mexico	8	Party Shoes	cutter	9
F	--	Mexico	6	Party Shoes	machine	1.5
F	42	Mexico	8	Party Shoes	sewing	14
F	44	Mexico	0	Party Shoes	sewing	7.75
F	52	Puerto Rico	4	Libra	patcher	14
F	26	Mexico	9	Libra	glove selector	3.5
F	41	Guatemala	7	Libra	punch press	19
M	44	Guatemala	4	Libra	bring gloves	--
F	50	Mexico	3	Libra	glove	11
M	28	Mexico	15	Juno	forklift	7
M	58	Mexico	2	Juno	assembly	10
F	30	Mexico	6	Juno	assembly	8
F	38	Mexico	5	Juno	assembly	7.5
F	35	Mexico	1	Juno	assembly	5
F	57	Mexico	5	Juno	assembly	5
F	--	Mexico	9	Juno	assembly	3
F	35	Mexico	8	Juno	assembly	5
M	38	Mexico	9	Juno	assembly	1.5
F	35	Mexico	6	Juno	assembly	4
F	54	Columbia	1	Juno	assembly	5
F	22	Mexico	12	Juno	assembly	.5
F	29	Mexico	9	Juno	assembly	.5
F	43	Mexico	10	Juno	assembly	11
M	23	USA	11	Juno	assembly	1.5
M	29	Mexico	8	Juno	group leader	11
M	24	Mexico	9	Suncast	material	2
M	25	Mexico	10	Suncast	material	2
F	24	Mexico	10	Suncast	assembly	4
F	29	Mexico	6	Suncast	assembly	7
F	21	Mexico	5	Suncast	assembly	6

Sex	Age	Birthplace	Years of Schooling	Company	Position	Years of Employment
F	25	Mexico	6	Suncast	end-of-line	3.75
M	25	Mexico	12	Suncast	material	2
F	38	Mexico	6	Suncast	machine	5
M	35	Mexico	11	Suncast	trainer	2.5
F	35	Mexico	10	Suncast	machine	7
F	47	Mexico	0	Suncast	assembly	3
F	31	Mexico	2	Suncast	molding	7
M	48	Mexico	0	Suncast	material	4
F	33	Mexico	0	Suncast	machine	8
F	57	Mexico	3	Suncast	machine	7
M	27	Mexico	6	Suncast	trainer	2
M	39	Mexico	10	Suncast	welder	6
F	34	Mexico	6	Suncast	assembly	6
M	39	Mexico	4	Suncast	machine	2
M	27	Mexico	9	Suncast	material	4.5
M	33	Mexico	3	Suncast	material	8.5
M	21	Mexico	9	Suncast	machine	.5
F	--	Mexico	13	Suncast	machine	.5
M	30	Mexico	17	Roman	laborer	9
M	53	Mexico	4	Roman	laborer	9.5
M	40	Mexico	3	Owens	looper	8.5
M	44	Mexico	6	Owens	forklift	20
M	36	Mexico	0	Owens	maintenance	10
M	60	Mexico	0	Owens	relief man	18
M	40	Mexico	0	Owens	coater	16
M	39	Mexico	6	Owens	core bag	16
M	59	Mexico	2	Owens	mat tender	18
M	33	Mexico	5	Owens	relief man	6
M	42	Mexico	11	Owens	slate mixer	3
F	32	Mexico	9	Phoenix	utility	13
F	39	USA	12	Phoenix	Q.A.	9
F	49	Korea	14	Phoenix	Q.A.	9.5
M	43	Mexico	9	Phoenix	machine	8
F	45	Mexico	6	Phoenix	machine	8
M	25	Mexico	8	Phoenix	utility	2.5
F	45	Mexico	7	Phoenix	Q.A. inspector	8
F	32	Mexico	6	Phoenix	material	7
M	48	Poland	12	Phoenix	utility	4
F	58	India	14	Phoenix	machine	3
F	42	Mexico	8	Phoenix	quality control	3
F	44	Korea	6	Enro	cuff attach	2

Sex	Age	Birthplace	Years of Schooling	Company	Position	Years of Employment
F	39	Vietnam	12	Enro	collar set	6
F	24	Vietnam	8	Enro	bottom hem	2.5
F	21	Vietnam	7	Enro	cuff set	6.5
F	29	Vietnam	12	Enro	sewing	3.75
M	52	Vietnam	12	Enro	collar set	3
F	37	Korea	6	Enro	seamstress	4.75
F	35	USA	12	Enro	cuff attach	6
F	45	Columbia	10	Enro	sewing	4.5
F	46	Belarus	12	Enro	set yoke	.75
F	26	Vietnam	12	Enro	joiner	2

*Data compiled from a representative sample of class participant files (468). n = 87

Table 2

Summary of Background Data on Sample Participants*
Worker Education Program 1993-95

Sex	
Female	54
Male	33

Age	n	Age	n
21	3	41	2
22	1	42	3
23	1	43	3
24	2	44	4
25	4	45	4
26	2	46	1
27	2	47	1
28	1	48	2
29	3	49	2
30	2	50	1
31	1	52	2
32	2	53	1
33	3	54	1
34	1	55	1
35	6	56	1
36	1	57	2
37	2	58	2
38	3	59	1
39	5	60	1
40	2		

Birthplace	
Belarus	1
China	3
Columbia	2
Guatemala	2
India	1
Korea	3
Mexico	64
Poland	1
Puerto Rico	1
USA	4
Vietnam	6

Years Schooling	
0 yr	7
1 yrs	2
2 yrs	4
3 yrs	4
4 yrs	4
5 yrs	4
6 yrs	16
7 yrs	3
8 yrs	7
9 yrs	10
10 yrs	8
11 yrs	3
12 yrs	10
over 12 yrs	5

Years in Present Work Site	
0 to1 yr	5
1 yr	3
2 yrs	10
3 yrs	10
4 yrs	7
5 yrs	6
6 yrs	7
7 yrs	7
8 yrs	7
9 yrs	5
10 yrs	3
11 yrs	3
12 to 15 yrs	4
16 to 20 yrs	7

*Data compiled from Table 1.

Class Attendance

A wide range of class attendance hours is evident in Table 3: from 12 hours to 148 hours. Such variance can most likely be attributed to the fact that students enroll in classes at different times and may take more than one class simultaneously, rather than to regularity of attendance. Table 3 also includes pre and post test gain scores on the three language progress tests. An analysis of the data does not appear to indicate that there is a correlation between hours of attendance and gains in scores.

Gains on BEST Oral, BEST Literacy and Holistic Writing and TABE Tests

Pre and post test scores for language and math were examined for the sample of 88 students. Test results and gain scores are listed in the following Tables. Blanks are left for tests that students were not administered or that were incomplete at the time of this Report. Students enrolled solely in math classes have only math scores recorded.

Gain scores for the BEST Oral, BEST Literacy and Holistic Writing Tests are given in Table 3. As can be observed from the scores, nearly every student in the sample shows a gain. For some students the gain is quite substantial. In a few cases, the score remains unchanged from pre to post. This is not surprising in the field of second language acquisition where progress can be observed at different rates of speed, with some learners maintaining plateau levels for some time before making an often significant leap in ability as measured on tests. In one case, the student scored the maximum possible on both the pretest and posttest, thus showing no gain. This suggests the need for an instrument that can discriminate at the higher levels of oral English as more students advance in their fluency.

The range of gain on the BEST Oral is from +0 to +18 with an average gain of +5.6. The BEST Literacy test was administered only to those in more advanced classes since it requires a firm grasp of English reading and writing skills. The range of gain on the BEST Literacy is +0 to +17. The average gain is +5.2. The third language test given was a Holistic Writing test. This test does not evaluate discrete writing skills, but rather a student's ability to compose and express ideas in a coherent text. The scores recorded on Table 3 are from students who had sufficient English ability to write at least the

posttest in English. Pretest scores of "0.0" indicate that the student was unable to write in English at that time. It is significant that in each of these cases, the student was able to write in English for the posttest. The range of gain on the Holistic Writing is +0 to +3.25 with an average gain of +1.0.

Students who were enrolled in math classes were given the TABE Math subtest and those pre and post test scores are recorded in Table 4. Gain scores for any of the language tests they had been given are also listed. With only one exception, students who demonstrated progress in math also did so in English language skills. It might be construed that positive learning experiences in one subject area contribute to overall learning success in other areas since students become adept at the study skills and attitudes that enable them to succeed. As can be seen in Table 3 and Table 4, some students present scores in both language and math since they were enrolled in more than one class during this evaluation period. Math score gains were observed in nearly all students, with some students improving significantly. The range in gains was +0 to +19 with an average gain of 8.7 points.

Table 3

Class Attendance and Pre and Post Scores on BEST Oral, BEST Literacy and Holistic Writing Tests

Worker Education Program 1993-95

Participant Sex/Age	Class Hours	BEST Oral*			Holistic Writing**			BEST Literacy***		
		Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
1F43	136	22	40	+18	--	--	--	--	--	--
2F41	140	40	40	+ 0	--	--	--	--	--	--
3F49	140	22	36	+14	--	--	--	--	--	--
4F56	117	10	14	+ 4	3.5	3.5	+0.0	--	--	--
5M55	111	5	10	+ 5	3.0	3.0	+0.0	--	--	--
6F37	24	9	19	+10	0.0	2.5	+2.5	--	--	--
7M45	45.5	31	34	+ 3	2.5	3.5	+1.0	--	--	--
8F--	56.5	6	11	+ 5	--	--	--	--	--	--
9F42	43	31	37	+ 6	2.5	3.0	+0.5	--	--	--
10F44	77	25	34	+ 9	2.0	2.0	+0.0	--	--	--
11F52	28.5	32	34	+ 2	--	--	--	--	--	--
12F26	13.5	27	33	+ 6	3.0	3.5	+0.5	--	--	--
13F41	40.5	7	17	+10	--	--	--	--	--	--
14M44	42	1	7	+ 6	0.0	0.5	+0.5	--	--	--
15F50	40.5	15	20	+ 5	0.0	1.0	+1.0	--	--	--
16M28	145.5	34	37	+ 3	3.75	4.5	+0.75	--	--	--
17M58	148	4	4	+ 0	2.0	2.0	+0.0	--	--	--
18F30	70.5	33	33	+ 0	--	--	--	53.5	59	+ 5.5
19F38	134	29	29	+ 0	2.0	3.0	+1.0	--	--	--

Participant Sex/Age	Class Hours	BEST Oral*			Holistic Writing**			BEST Literacy***		
		Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
20F35	97.5	--	--	--	2.0	3.0	+1.0	50	58	+ 8
21F57	104	--	--	--	2.5	3.0	+ .5	--	--	--
22F--	28	--	--	--	--	--	--	60	64	+ 4
23F35	70.5	18	22	+ 4	1.5	2.5	+1.0	--	--	--
24M38	73	24	28	+ 4	2.5	2.75	+0.25	68	69	+ 1
25F35	94	17	27	+10	1.5	2.0	+0.5	--	--	--
26F54	62	--	--	--	0.0	1.25	+1.25	--	--	--
27F22	103	21	31	+10	--	--	--	--	--	--
28F29	46.5	29	29	+ 0	2.5	3.0	+0.5	--	--	--
29F43	62	--	--	--	--	--	--	--	--	--
30M23	32	--	--	--	4.5	4.5	+0.0	--	--	--
31M29	62	31	35	+ 4	3.5	4.0	+0.5	--	--	--
32M24	87	27	31	+ 4	--	--	--	47	49	+ 2
33M25	84	36	39	+ 3	--	--	--	60	63	+ 3
34F24	140.5	22	22	+ 0	1.5	2.5	+1.0	44	47	+ 3
35F29	125	--	--	--	1.0	2.5	+1.5	--	--	--
36F21	110.5	--	--	--	3.0	4.0	+1.0	48	48	+ 0
37F25	126	30	32	+ 2	2.0	3.0	+1.0	46	48	+ 2
38M25	115.5	--	--	--	2.0	3.0	+1.0	50	53	+ 3
39F38	88.5	15	21	+ 6	1.0	2.0	+1.0	37	38	+ 1
40M35	139.5	--	--	--	2.5	4.5	+2.0	54	62	+ 8
41F35	141	29	37	+ 8	2.0	4.0	+2.0	61	71	+10

Participant Sex/Age	Class Hours	BEST Oral*			Holistic Writing**			BEST Literacy***		
		Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
42F47	118.5	6	7	+ 1	1.0	1.0	+0.0	--	--	--
43F31	120	16	20	+ 4	1.0	2.5	+1.5	--	--	--
44M48	108	2	7	+ 5	0.0	0.25	+0.25	--	--	--
45F33	134	12	18	+ 6	1.0	2.5	+1.5	20	29	+ 9
46F57	131	2	6	+ 4	1.5	1.5	+0.0	--	--	--
47M27	81.5	13	13	+ 0	2.5	3.5	+1.0	--	--	--
48M39	112.5	16	27	+11	1.5	2.0	+0.5	--	--	--
49F34	118	4	15	+ 9	1.0	1.0	+0.0	--	--	--
50M39	138	9	18	+ 9	0.5	1.0	+0.5	--	--	--
51M27	96	--	--	--	3.0	3.0	+0.0	--	--	--
52M33	92	27	36	+ 9	2.5	2.5	+0.0	--	--	--
53M21	30	5	11	+ 6	--	--	--	--	--	--
54F--	34	6	19	+13	--	--	--	--	--	--
55M30	4	--	--	--	3.5	4.0	+0.5	--	--	--
56M53	41	27	31	+ 4	0.5	0.5	+0.0	--	--	--
57M40	51	14	25	+11	--	--	--	--	--	--
58M44	73	21	27	+ 6	0.0	2.5	+2.5	--	--	--
59M36	54	35	40	+ 5	1.0	2.5	+1.5	--	--	--
60M60	73.5	5	17	+12	0.0	0.33	+0.33	--	--	--
61M40	70.5	30	32	+ 2	--	--	--	--	--	--
62M39	18	--	--	--	--	--	--	--	--	--
63M59	34.5	29	31	+ 2	--	--	--	--	--	--
64M33	73	23	31	+ 8	--	--	--	--	--	--
65M42	67	33	40	+ 7	3.0	3.5	+0.5	--	--	--

Participant Sex/Age	Class Hours	BEST Oral*			Holistic Writing**			BEST Literacy***		
		Pre	Post	Gain	Pre	Post	Gain	Pre	Post	Gain
66F32	24	--	--	--	2.5	3.5	+1.0	--	--	--
67F39	24	--	--	--	3.5	5.0	+1.5	--	--	--
68F49	12	--	--	--	--	--	--	--	--	--
69M43	16.5	--	--	--	3.0	4.5	+1.5	--	--	--
70F45	27	--	--	--	2.5	4.0	+1.5	--	--	--
71M25	21	--	--	--	3.5	4.5	+1.0	--	--	--
72F45	16.5	--	--	--	--	--	--	--	--	--
73F32	25.5	--	--	--	2.5	4.5	+2.0	--	--	--
74M48	22.5	--	--	--	1.0	1.5	+0.5	--	--	--
75F58	15	--	--	--	1.5	1.75	+0.25	--	--	--
76F42	15	--	--	--	--	--	--	--	--	--
77F44	16	6	13	+ 7	--	--	--	--	--	--
78F39	28	--	--	--	1.0	2.0	+1.0	--	--	--
79F24	28	36	36	+0.0	1.25	3.0	+1.75	--	--	--
80F21	19	16	22	+ 6	2.5	2.5	+0.0	--	--	--
81F29	28	28	29	+ 1	1.0	4.0	+3.0	--	--	--
82M52	29	26	27	+ 1	1.0	4.0	+3.0	--	--	--
83F37	45	24	25	+ 1	1.0	3.5	+2.5	--	--	--
84F35	59	35	36	+ 1	1.0	3.5	+2.5	--	--	--
85F45	27	--	--	--	2.0	4.5	+2.5	--	--	--
86F46	29	--	--	--	1.75	5.0	+3.25	64	72	+ 8
87F26	29	--	--	--	--	--	--	69	75	+ 6

*BEST Oral = Basic English Skills Test, Oral Interview Subtest (Maximum score = 40)
**Holistic Writing Test in English (Maximum score = 6.0)
***BEST Literacy = Basic English Skills Test, Literacy Subtest (Maximum score = 78)

Table 4

Pre and Post Scores on TABE Math Test*
Worker Education Program 1993-95

Participant	TABE Math Subtest			Gains from Table 3 Tests**		
	Pre	Post	Gain	BEST-O	Holistic	BEST-L
16M28	20	23	+ 3	+ 3	+ .75	+ 4
18F30	4	9	+ 5	+ 0	--	+ 5.5
23F35	7	9	+ 2	+ 4	+1.0	--
29F43	9	15	+ 6	--	--	--
30M23	14	18	+ 4	--	+0.0	--
31M29	15	25	+10	+ 4	+0.5	--
57M40	1.	20	+19	+11	--	--
58M44	10	19	+ 9	+ 6	+2.5	--
59M36	0	17	+17	+ 5	+1.5	--
60M60	0	13	+13	+12	+0.33	--
62M39	2	18	+16	--	--	--
64M33	2	13	+11	+ 8	--	--
65M42	10	22	+12	+ 7	+0.5	--
66F32	17	25	+ 8	--	+1.0	--
67F39	8	17	+ 9	--	+1.5	--
68F49	13	25	+12	--	--	--
69M43	11	21	+10	--	+1.5	--
72F45	6	6	+ 0	--	--	--
73F32	15	25	+10	--	+2.0	--
74M48	13	21	+ 8	--	+0.5	--
75F58	20	24	+ 4	--	+0.25	--
76F42	11	15	+ 4	--	--	--

*TABE = Test of Adult Basic Education, Math Subtest (Maximum = 25)

Table 5

Tests of Significance
Worker Education Program 1993-95

BEST Oral	Pre-mean and post-mean gains were highly significant at .001 level using a paired T test.
Holistic Writing	Pre-mean and post-mean gains were highly significant at .001 level using a paired T test.
BEST Literacy	Pre-mean and post-mean gains were highly significant at .001 level using a paired T test.
TABE Math	Pre-mean and post-mean gains were highly significant at .001 level using a paired T test.

BEST Oral:

Pre-test mean	S.D.	Post-test mean	S.D.	Gain	S.D.	N
20.1	11.0	25.5	10.3	5.4	4.1	59

Holistic Writing:

Pre-test mean	S.D.	Post-test mean	S.D.	Gain	S.D.	N
1.8	1.1	2.8	1.2	.99	.86	64

BEST Literacy:

Pre-test mean	S.D.	Post-test mean	S.D.	Gain	S.D.	N
52	12.4	56.6	12.9	4.6	3.2	16

TABE Math:

Pre-test mean	S.D.	Post-test mean	S.D.	Gain	S.D.	N
9.5	6.2	18.2	5.6	8.7	4.98	22

Case Studies of Participants

Case studies are valuable in that they can serve as illustrative examples of themes and patterns suggested by the quantitative measures of the program evaluation. Case studies from the WEP more clearly address the critical issues and human dimension of the program than test results. The following quotations and summaries of students and teachers in the WEP reveal valuable information about the reasons for taking classes, the impact of class study on job performance and job satisfaction, long-term work aspirations, and the broader implications of study on their personal and family life.

The student writing samples excerpted below are striking in their candor and communicative quality. Many of these students began WEP classes unable to write in English at all. Not only is linguistic progress evident in these writings, but the subject matter itself is rich in information about the realities of the students' lives in class, at work, and outside the work place. It is worthy of note that many of the themes and perspectives addressed in these quotes have been incorporated into ongoing design and revision of curriculum, instructional materials, training and teaching strategies. (The quotes taken from participants in the representative sample are identified by the ID number from Table 1. Other quotes are marked with the work site name.)

> This English...class has helped me many problems, especially in the activities such as working, shopping, visiting the doctor... Before taking...this class, I couldn't speak English fluency and I scared so much when somebody asked me, but now, I feel better, I can answer easier. (82M52)

> When I came in United State I did not understand well. I was scare when I talk and met somebody...but now I feel better after I attendent this class...I am not afraid any more and I alway appreciate my boss and my teacher helped me very much about how to speak English. (81F29)

> The class was very helpful to me... I'll learn...how to use them (English parts of speech) here at work... (and) to help my daughter in school. (84F35)

I still learn more English because...I knew I am not good writting a sentence but I will be good some day because I am not give up. (83F37)

In the class, I have improved my English...I learn different things that I never knew about...The class is like a big family. (1F43)

This class is a challenge. It make me think. (66F32)

This class has been very helpful for my education. It has opened my brain more. I have learned so much. Sometimes it takes me a little while to understand...The English language in written is more confusing than to speak, and because of this class I started reading and writing more at home. (73F32)

I came from China. My English was not good. I could not talk with my boss. Sometime my boss asked me to do something. I didn't know what he said. I had to study English...Now I can speak little English. Sometimes my boss asked me to do something, I understand. (ACTWU a.m.)

For me to learn English is so important...because if you know how to speak, read and write English you can do your own things... you can talk with the supervisor. This is so important because we need to have communication, because lots of times we have problems and we need to fix these problems. (16M28)

This program is very good for the people who want to learn and improve...I would like many people to think about their future. In this class I have learned many things. (19F38)

...I'm here to learn the most English I can, so in the future I can get a better job. (Juno)

I speak more English to my boss and my co-workers. It's easier for me to read the news paper. When I watch TV in English, I understand a little more. (ACTWU p.m.)

Since ever I has been in this English...class, I feel like growed up...I still desire to learning more and more because I think all most the Vietnamese people even me, we got a big trouble for language. (Enro)

English...class has helped me speaking English better than before...That is making feel comfortable in my job. (Enro)

...I have be learned talk with supervisor about my machine have promblam. (Enro)

In Egypt I learned English...but this was not benefit for me because there was no practicing...Now I'm learning English as a practicing...I'm understanding...when my supervisor explain to me how I can do my job. The English class help me very good. (Enro)

I study English one year. This class helped me in my work...I can better understand my supervisor. I must study English more because language is my life. (Enro)

...I think that the idea to teach the employees is very good, because that way can have better comunication at the work area, this will give good results. (Phoenix)

...(The class) is helping to understand the sizes of bolts and tools I use. I know now I can learn faster than I guess before. (Phoenix)

I'm in class to improve my job. I'm a QC inspector and need to write. I have to write orders, follow instructions. Spelling is important to me. (Phoenix)

...when I started to work in this company, I didn't need very much English, but now I have to communicate with more people in English. For example: we have a meeting every day and I have to explain the problems at work. My supervisor only speaks to us in English. For that reason, I appreciate this class. (Suncast)

I like this factory because they give me a chance to come to English class. I come two days a week and they give me other opportunities. (Suncast)

> I like the English class, because now I can talk with my supervisor and speak for myself and I do not need to have another person interpret. (Suncast)
>
> ...When I started in this class I don't know how write a composition about what I learn in my class. Now I know to do that. Then when I talk with my supervisor I always try to speak English with him. I know I can learn more... (Suncast)

The following translated comments are from beginning literacy level students who wrote or spoke in Spanish. They discuss the need to learn English, the connection between work place English classes and job advancement potential, the value of having classes at the work site, and the realities of immigrant life:

> I need to write my work tasks and hours so writing is important. (Suncast)
>
> I used to nod "yes" even when I didn't understand my boss. Now I can tell him "Yes, I understand" or "No, I don't understand." (Suncast)
>
> My supervisor told me a task to do. I didn't understand and did it wrong. He was upset and gave the next task to a better English speaker. So I need to learn. (Suncast)
>
> I used to pick up a few words before, but now I feel like I'm really learning more. (Suncast)
>
> I like my English classes because I can learn a lot of things to get ahead. They also help me in my work because I would like to be a trainer or something else at work. I can't because I don't know English-I understand very little. (Suncast)
>
> The English classes are very good...I appreciate my bosses at the factory for caring that we learn English. Thanks for caring about us. (Suncast)

I think that the English classes that they give us are very good. I think that everyone that works here is fleeing from a country in which our own government robs us. We come here to progress but (we are not given) the communication needed to succeed. We don't have the confidence to assume a new position (at work) knowing that we aren't prepared for it. (Suncast)

I have lived and worked in the United States a long time, but I don't know how to read. I was afraid of letters and signs. I didn't have any way to understand them. Now in this class I am learning letters and how words are written and I'm not afraid of them anymore. The teachers help me overcome my fear. I didn't believe I could learn something. I'm very happy. (Suncast)

I feel good about the class. Last year my daughter told me, "Mommy could you help me with my homework. I told her, "I can't because I don't know decimals." Last six months, she asked me the same question and I helped her because I know decimals now...I would like to stay in the class and learn more English to have a better future...For example, I could be a secretary. (Juno)

I always had problem with mathematics, that's way I took this class because I think if someone else can do it, I think I can so this class is a challenge for my...I feel some change because now I can help my kids with their math or algebra. (69M43)

Several cases of job promotions illustrate the impact of WEP courses on job advancement. At Juno Lighting, Inc. a student in the Maintenance Preparation course was promoted from line worker to a Class C Maintenance position, involving new job responsibilities and skills and a raise in pay. The Maintenance course was designed specifically to help workers qualify for positions in the Maintenance department and although this student was pessimistic about her chances of gaining such a position, particularly because she was a woman, she studied hard and completed the 16 week course successfully. Her test scores in math showed a gain of 6 points on a 25 point scale (Pretest 9/ Posttest 15). Two administrations of a Maintenance course test yielded a significant score gain from 70 to 94 (maximum score = 100).

When asked how she felt about her new job she said, "I feel better because now I know more about a new job and I have more confidence that I will excel in life. When I go out and fix something, and then go back and write it down, I feel good because I accomplished something new." She expressed the importance of participating in WEP classes saying, "Even if I lost this job, I can fix machines now and do this same kind of work in another company." (ID 29F43 from Table 1) Participation in WEP classes also motivated her to further her education by enrolling in WordPerfect classes near her home and to consider taking GED classes. Co-workers also took interest and asked about the WEP classes she took and when they would be offered again.

This student ultimately was not able to continue in her Maintenance position due to health reasons and it was offered to a co-worker (ID 31M29 on Table 1) who also completed the Maintenance Preparation course. In class, he showed substantial improvement of 10 points on a 25 point scale in math scores (Pretest 15/ Posttest 25) and his Maintenance course test score rose from 84 to 87 (Maximum = 100).

At Suncast, two promotions resulted from a class exercise designed by the teacher to acquaint students with job interview protocol and language. Students spent several classes studying sample job interview scripts and role playing with each other. The culminating activity for this unit was an interview in the Personnel Department at the plant to practice their skills in a "real life" setting. As a result of this exercise, the personnel officer said he learned that several students aspired to have jobs as forklift operators, so he gave them questions to practice answering for the forklift position. He saw no reason why they would not be qualified as a result of his interview with them. Training coordinators also reported a number of other promotions of WEP students from assembly line to training and quality control because of the workers' improved English communication skills.

Case Studies of Work Sites

Suncast

Suncast is an example of a business with strong management and Union support for the long-term Worker Education Program ESL classes. The WEP has had significant impact on the improvement of language skills of the workforce. At least 180 of the 450 employees have been through the ESL

courses. According to the director of Human Resources, all trainers (those who train new assembly line workers) have been or are in ESL classes and have been promoted as a result of ESL classes. Others have been promoted and need to attend ESL classes in order to be fully functional. The director commented on the effect of classes on workers, saying, "I used to use Spanish phrases when I spoke with workers, but now I use English because of the positive attitude in workers who are not afraid to try to use English."

Another important issue for labor and management is workforce stability and the costs to the company of an unstable worker pool. The Suncast director of Human Resources also commented that the ESL classes help with maintaining a stable workforce. Stability is particularly important as the industry moves toward a teamwork-based orientation, with Total Quality Management (TQM) guiding company operations. The director noted that the trend in the industry is to grow from within the company, with significant resources committed to enhancing the skills and contributions of the existing workforce. He described the situation in this way:

> If we bring in a stranger, we don't know if he or she will be good for us, whether they will be a team worker. Our goal is to have TQM in operation all the way to the line worker. Training and education are important to help with more than stuffing boxes on the line. Workers must be able to help solve problems. (Suncast HR director, interview)

Amalgamated Bank of Chicago

A total of 52 ABOC workers participated in a highly successful series of mini-courses which addressed important bank employee skills and issues. Responses on the course evaluation indicated that participants overwhelmingly agreed that they had developed professionally and personally as a result of the course by gaining specific communications skills and knowledge about the operation of the bank, particularly in departments outside their own. In fact, the majority of participants asked that more time be given to such training.

The instructor commented that one noteworthy result of the participatory model of training came from the unit on Teamwork and Leadership, which served as a catalyst for developing teamwork strategies at the bank which had not operated with a teamwork structure previously. A concrete example of this new problem-solving skill in action was the suggested changes in bank

operations proposed by course participants in the following areas: communication of information and materials, equipment and technology, training concerns, and staffing concerns. As a result, management agreed to install new telephones, a voice mail system, and security measures for tellers. Supervisory staff commented on the positive impact of the courses they observed in the workers. The Vice President of Human Resources said that she had "heard nothing but good comments about this (from department heads)." The positive effect of this partnership training is also reflected in the following comments by three of the participants:

> A ...good and growing experience that...also made for...more good will within the bank itself.
>
> Everyone, including bank supervisors and managers should attend these courses. They can really benefit each department.
>
> I really feel honored to be part of these classes. I feel like ABOC cares about me...by offering these classes. (excerpted from *Final Evaluation of Training in ABOC Products and Services*, p. 3, The Center for Workforce Education)

Enro

Enro is a garment factory employing approximately 700 employees, 10 percent of whom have been enrolled in WEP classes. There is strong union support for the program and an enthusiastic student population has made for a thriving program. This is reflected in the following statement of a union official, "I don't need numbers to quantify effectiveness. I know this works. It's good for us. I'm a former teacher. It's been very positive. These people need help. They're hardworking. Everyone wins in this situation." Plant supervisors have noticed a rise in workers' confidence levels and language abilities and have even seen the cost effectiveness of having WEP on site. One supervisor commented, "It's (WEP) made a big difference. Before, mistakes were often hidden and passed on, but now workers are more willing to talk directly and we don't have to pay an interpreter when problems arise." The interpreter was customarily a coworker who would have to punch out in order to help with translation, thus losing valuable work time and slowing down the assembly process. By having more workers able to communicate well, such need for interpreters has diminished.

Juno Lighting

Juno Lighting is a light manufacturing plant producing lighting fixtures. The WEP has been actively involved in worker education through course offerings in ESL, basic skills, GED and job-specific courses such as Maintenance Preparation. There is a clear relationship between educational improvement and job promotion potential at Juno as explained by a Human Resources official:

> The following factors are important in considering line workers for promotion to QC (quality control):
>
> - how well they get along with coworkers
> - attendance
> - sense of dedication to job and ability to take initiative
> - reading and writing skills in English
> - oral communication skills in English
>
> Promotion to Shipping and Receiving is based on similar factors and includes a math test.

Effective interaction in English is clearly essential to superior job performance and promotion. Moreover, a planned move to a new, more automated plant site in the near future will necessitate acquisition of additional skills to run new machinery and fill new positions. Classes at Juno have drawn a dedicated pool of students and successful recruitment activities have included open house festivities with promotional incentives and current and former student testimonials. The WEP is faced with the challenge of maintaining enrollment and dealing with the realities of workers' transportation and child care conflicts which often make attendance difficult.

The WEP teaching staff at Juno is stable, dedicated and well-liked by the students. Classes utilize work-specific language and tasks and often involve taking students onto the plant floor for hands on lessons. The students learn effective communication techniques in English and are able to describe the work they do, the tools they use, and the problem-solving approaches they take. The WEP successfully addresses the fact that the students are the experts at their job but may lack the language/communication skills necessary to perform optimally and be considered for promotions.

The observations and responses cited in these case studies concerning the effects of the Worker Education Program confirm the findings from the

previous Evaluation Report 1992-93 in which supervisors noted increases in English usage and self-confidence at work, better communication, improved job performance, and promotion of program participants. This data strongly indicates that the WEP continues to be effective in attaining its goals of workplace education.

Staff Perspectives

The teaching staff was asked to reflect on the Worker Education Program. Teachers expressed a deep sense of commitment to their particular students and felt a great deal of reward working with such motivated learners. Just as their students feel valued by the individualized attention they receive, the teachers also mentioned their appreciation for the staff development activities created by responsive training coordinators. They feel well-supported and are able to be responsive to their students as a result. Teachers commented on the positive attitudes that have developed in their students. Teachers expressed a common observation that students exhibit much more ease in their use of language, both written and spoken. This increased confidence level and willingness to take risk is a significant positive outcome of the WEP.

The staff training coordinators noted the satisfaction they feel when they see training activities incorporated into class lessons and methodology. The training staff shares responsibilities for staff development in such a way that each trainer is capable of managing many different areas. This flexibility is a positive factor and the trainers see the benefits of working this way. They pointed to the detailed work on curriculum development and its translation to class lessons as one of the significant accomplishments of the WEP. Under their guidance, many program elements have become more systematized, making teachers' work more streamlined and program evaluation more effective. The training staff expressed its appreciation for the strong support it receives from the program director. There is a clear line of support that reaches from director, through trainers, to the class teacher and ultimately to the learner.

The Union Perspective

The Union partner plays a vital and unique role in the success of the Worker Education Program. The Union's interest is in the enrichment of the workers' lives, professionally and personally. In fact, it seeks to broaden the definition of successful worker education to include not only enhanced worker performance on the job, but also personal enrichment. It clearly operates on the notion that an educated, self-confident individual can contribute even better to the workforce. The Union has been active in recruitment efforts and plays a major role in other support services as well. The Union has been able to draw on its vast resources to encourage recruitment efforts and to help workers see the value of education at the workplace.

When asked to reflect on the impact of the WEP, the chief Union representative stated that it has been positive on many levels. One of the important impacts of the WEP has been its stabilizing effect on the job site. It has created a more steady workforce and has promoted the teamwork concept. Several sites have reported to her decreased absenteeism and an increase in motivation and teamwork attitude. In fact, the Enro plant program coordinator reported that the WEP classes actually helped production, not hurt it. She attributed this to the fact that workers were highly motivated to work efficiently in order to finish or surpass quotas before being released for class. When problems arose on the production line, workers voluntarily returned to resolve the problems after class and work hours.

The Union official also noted that there were fewer "off-the-wall" or trivial grievances filed by workers enrolled in WEP classes. She believes this is due to the fact that workers in classes feel that their employer and union take genuine interest in them and are responsive to their needs.

The value of the Union partnership is critical, noted the official. She believes workers might not be as willing to reveal educational needs to management on their own, but with Union backing, they feel more able to do so. The importance of membership in the Union and WEP class was apparent in a recruiting incident at a non-unionized plant. Several WEP students joined the recruitment team in its effort to unionize another plant. The Union official believes this participation would not have happened without the confidence these workers have gained as a result of WEP classes. They were effective recruiters and realized how fortunate they were to be a part of a union when

they saw the conditions that the target plant workers endured. WEP classes enabled them to articulate their views and appreciate the benefits of being in a union-supported program.

Finally, the Union wants to see the WEP reach as many workers and factories as possible, allowing employers to realize its effectiveness and ultimately to be willing to take on these programs themselves as an integral part of company human resource development. The Union official advocates publishing success stories in trade journals and other publications that management reads to help this process. She summed up the importance of workplace education in the future of companies, "The workplace is going to be constantly changing and workers have got to be involved in the changes."

Potential for Dissemination

WEP: A Model for Workplace Education Programs

An important aim of the WEP was to document "...a model that could be disseminated to other settings." (*Abstract* of Proposal). An analysis of the program curriculum guides, instructional materials, and interviews with WEP staff, students and business employers during this evaluation period has led to the following conclusions about the nature of the program as a model for similar workplace education projects.

1. Comprehensive Framework to Guide the Program

The WEP has a clear and well thought out philosophy, instructional framework and vision of workplace education guiding the program. This derives from current knowledge of the literature on workplace education, outstanding leadership of the Project Director, and extensive experience in the field of adult education, literacy and language development of the professional staff coordinators. As importantly, a close working relationship among the partners has afforded multiple perspectives in the articulation of main goals, policy, procedures and implementation practices of the program.

2. Collaborative Workplace Education Planning

An outstanding feature of the WEP is the comprehensive task analysis undertaken at each work site in order to help formulate curriculum content and instructional strategies. This process has involved all partners in the program: workers, union, management of the companies, and the university. An Advisory Board serves to monitor the program overall.

It is the finding of this Evaluation Report that the greatest successes of the WEP occur in companies where the educational program is an integral part of worker training and quality improvement.

3. Worker-Centered and Holistic Curriculum and Instructional Approaches

A great strength of the Worker Education Program is its sound pedagogical foundation and its understanding of adult learning. This is apparent in the guiding documents and statements and practices of administrators, training staff and teachers. The following summary of WEP philosophy illustrates this well.

> The ACTWU Worker Education Program's philosophical approach is "worker-centered" and "holistic." "Holistic" means that all four language skills (reading, writing, listening, speaking) are taught in each class session.
>
> "Worker-centered" means that workers' needs and interests...direct the course of the curriculum; curriculum materials are based on workers' interests and choices; and maximum worker involvement, participation, cooperation, and initiative are encouraged.
>
> The "worker-centered" or "participatory" approach links education to workers' social realities where they take an active role in their own learning...They set goals for themselves, track their own progress and become more aware of their learning process.
>
> (Curriculum Guide, 1993, p.5)

The WEP Curriculum is a prime example of the worker-centered philosophy. Its design is based on close analysis of workplace and worker needs and provides a coherent framework for developing appropriate instructional strategies. It allows for student-generated topics relevant to their lives and their jobs to be acknowledged in the curriculum on an ongoing basis. "Incorporating worker-generated topics and materials into the curriculum reflects a true worker-centered approach." The curriculum is seen as "a 'living' document, one that will build, develop and grow as the program continues. (Curriculum Guide, 1993, p. 6)

The instructional strategies advocated by the WEP derive from the view of adult learning described above. In implementing a worker-centered approach, teachers are encouraged to practice an eclectic methodology that draws upon a number of effective strategies which are clearly summarized in the Curriculum Guide. The goal of the educational methodology is to have

workers "reflect on...their workplace and personal experiences to assist them in learning how to learn, how to facilitate better communication at the workplace, how to work as a team, and how to build on present skills for future job stability and promotion." (Curriculum Guide, 1993, p.4)

4. Formative Evaluation for Program Improvement

Throughout the implementation process of the WEP, it was valuable to document the experiences of staff, teachers, worker participants, and company management in order to evaluate the efficacy of the program in achieving its stated goals. The narratives of these experiences provide insight into the workings of a workplace education program from many different perspectives and gives us a sense of the issues that must be continually addressed to maintain a vital program that serves all of its stakeholders. It was useful for the evaluation to examine both quantitative and qualitative data, with particular attention paid to the narratives of the workers, who contributed richly to the understanding of the importance of the WEP.

5. Broadening the Concept of Workplace Education

One of the primary learnings gained from the implementation process of the WEP was the understanding of workers' attitudes toward work and their eagerness to pursue avenues to job advancement and new skills that will prepare them for the changing, technologically advancing workplace. This suggests that the notion of workplace education must be broad enough to include perceptions of work and career opportunities, job aspirations, self awareness and understanding, analysis of one's talents, and career planning.

An important characteristic of the WEP is that it recognizes these broader issues of career and human development as essential compliments to the understanding of adult education and language development that guide the curriculum. The statement of Program Objectives addresses this important notion as follows:

> Courses will be offered to raise workers' basic literacy skills in reading, writing, mathematics, problem-solving and communication skills. The attainment of these skills will ideally enable the workers to

> be promoted or to cope with the changing demands of the workplace. As workers' personal literacy and language needs are met, their self-esteem will be raised and their lives, as well as their job performance, will be enhanced. (Curriculum Guide, 1993, p. 2)

It is important, therefore, for programs involved with worker education to develop the kind of evolving curriculum that takes into account the broader issues of the worker's life and the changing workplace. The WEP has been guided by this principle from its inception and consequently has had the opportunity to put this into effect in its instructional training.

Summary and Conclusions

Efficacy of Program Structures

The WEP finds its greatest strengths in its conceptual design, the program structures developed, relevant worker-centered curriculum, and instructional training components. These elements were instrumental in enabling the WEP to reach its desired program goals. Additional features that contributed to its success include: an emphasis on experiential learning, holistic instruction that is learner-centered, ongoing development and piloting of program and site-specific assessment tools, curricular units and instructional materials, a responsive administrative staff, and an insistence throughout on quality.

The chief conclusion of this Evaluation Report is that the WEP was successful in implementing an effective program that achieved its stated goals.

Process and Outcome Results

Both quantitative and qualitative data indicate that the WEP reached its process and outcome goals to a significant degree. Workers showed gains in oral and written language skills as well as in computational ability on pre and post tests. These outcomes are attrributed to the quality of the curriculum, effective instruction, and the well-directed teacher training component. It was found that improvements in workplace performance and language skills were augmented in those work sites where workplace education was an integral part of human resource training and quality improvement operations.

Interview and case study data from plant supervisors, workers, teachers and staff confirm previous findings of significant improvements in numerous communication, math and workplace competencies. (see "Supervisors' Checklist of Worker Competencies" in WEP Final Report, 1993-95)

WEP as a Model for Designing and Implementing Other Programs

The WEP has excellent potential to serve as a model for designing and implementing other workplace education programs. Among the chief assets are the governance structure, the visionary leadership and responsive administrative staff, an evolving curriculum design based on worker needs, teacher training and support, instructional innovation, and the formative evaluation component which provides feedback for decision making.

The WEP operates from an effective and comprehensive framework in which a unique three-way partnership of company, union and university designs, implements and evaluates the education program. The program rests on sound pedagogical foundations in its construction of curriculum based on relevant worker realities and needs. The WEP staff strives continuously to build and modify the curriculum to best serve its learner population. It encompasses workplace skills and seeks to address broader issues of work advancement, career development, workers' perceptions of work and career aspirations, future work force needs, and the changing global marketplace.

The collaborative nature of program planning is one of the important cornerstones of the WEP. The program consistently seeks to coordinate its efforts with the human resource and quality improvement plans of individual companies. Program effectiveness is markedly enhanced when these efforts are consistent with one another.